

## CLAIMS

What is claimed is:

1. A non-aqueous electrolyte secondary battery comprising a positive  
 5 electrode which is configured by applying on a current collector a mixture  
 which comprises:

  - a lithium-containing composite oxide having a hexagonal system  
 structure, wherein Co is substituted for part of nickel atoms in the crystal  
 lattice in a lithium-nickel composite oxide which is represented by a  
 10 general equation,  $\text{LiNiO}_2$ , (provided that the substitution percentage  
 ranges from 5 % to 30 % of the number of nickel atoms in said  
 lithium-nickel composite oxide) and, in addition, at least one element which  
 is selected from a group consisting of Al, Mn, Ti, and Mg is substituted  
 (provided that the substitution percentage is less than 20 % of the number  
 15 of nickel atoms in said lithium-nickel composite oxide),
  - a binder, and
  - a conductive material;

wherein said lithium-containing composite oxide is characterized in  
 that a half width of the (110)-plane-based diffraction peak obtained from  
 20 powder X-ray diffraction method, in which  $\text{CuK}\alpha$  line is used as  
 characteristic X-ray, is larger than  $0.13^\circ$  and smaller than  $0.20^\circ$  and that  
 the ratio of the (003)-plane-based diffraction peak intensity to the  
 (104)-plane-based diffraction peak intensity is larger than 1.2 and smaller  
 than 1.8.
- 25 2. The non-aqueous electrolyte secondary battery according to claim  
 1, wherein said lithium-containing composite oxide is represented by the  
 general equation,  $\text{Li}_w\text{Ni}_x\text{Co}_y\text{M}_z\text{O}_2$ , (provided that M is at least one element  
 which is selected from Al, Mn, Ti, or Mg,  $0 < w \leq 1.2$ ,  $0.95 \leq x+y+z \leq 1.05$ ,  
 30  $0.5 \leq x \leq 0.9$ ,  $0.05 \leq y \leq 0.3$ , and  $0 < z \leq 0.2$ .)
3. The non-aqueous electrolyte secondary battery according to claim  
 1, wherein said lithium-containing composite oxide is represented by the  
 general equation,  $\text{Li}_w\text{Ni}_x\text{Co}_y\text{Al}_z\text{O}_2$ , (provided that  $0 < w \leq 1.2$ ,  
 35  $0.95 \leq x+y+z \leq 1.05$ ,  $0.7 \leq x \leq 0.85$ ,  $0.1 \leq y \leq 0.2$ , and  $0.01 < z \leq 0.1$ .)